

LIST

The LIST command is used to list one or more objects which are contained in the current library.

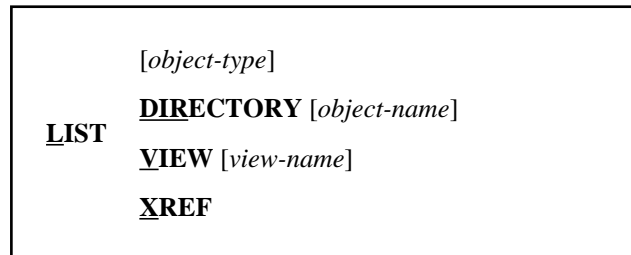
The numerous options of the LIST command are explained below.

Since LIST can display long lines containing up to 244 characters, set the line size as big as possible (using profile parameter LS, if possible LS=250).

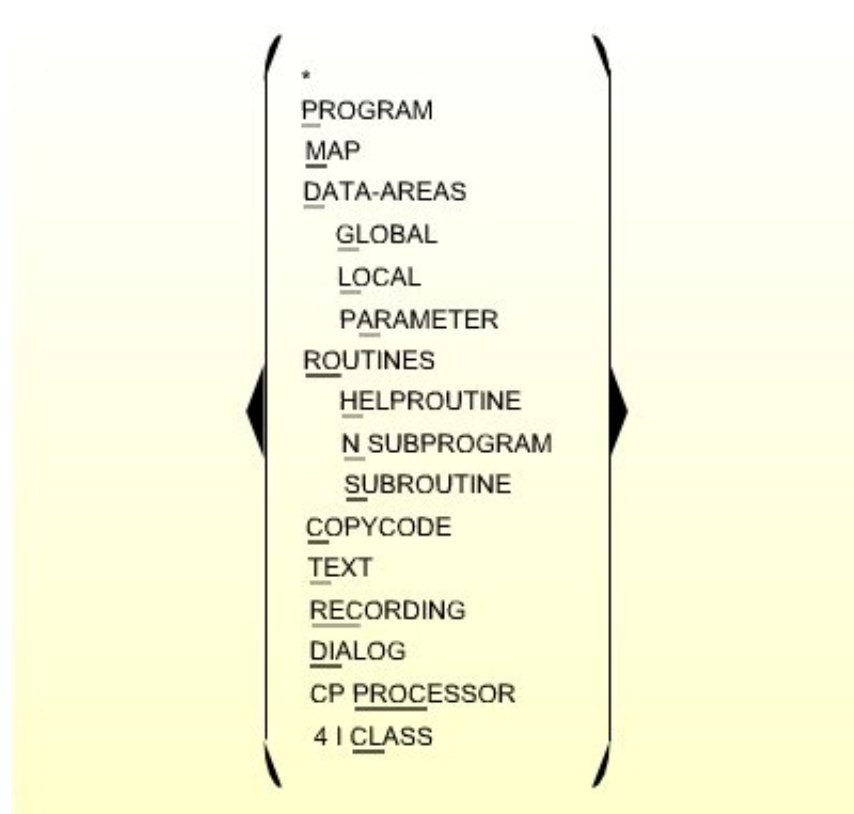
This section covers the following topics:

- Syntax Diagrams
- Functions
- Options
- List of Objects
- List of Source
- Subcommands in Expand Object

Syntax Diagrams



object-type



extended-type



options

$$\left\{ \left[\left[\text{WITH} \right] \underline{\text{D I R E C T O R Y}} \right] \left[\underline{\text{N U M B E R S O F F}} \right] \left[\textit{expand-option} \right] \right\}$$

formatted-option

formatted-option

```

FORMATTED  [c'] [c'] [ SETTINGS ]
           [  FIELDS
           [ EXTFIELDS ]
           [
           [ INLINERULES ] [ FREERULES ] [ AUTORULES ] ]
           ]

```

expand-option

```
EXPAND [FORMATTED] [COMMENTSn] [expand-type...10] object-name
```

Functions

This section covers the following topics:

- Displaying an Individual Source
- Displaying Directory Information
- Displaying Long Names of Cataloged Subroutines and Classes
- LIST SEQUENTIAL
- Displaying DDMs
- Displaying XREF Data
- LIST EXT extended-type object-name and LIST object-type object-name

Displaying an Individual Source

LIST	If you enter only the LIST command itself, without any parameters, the contents of the source work area will be listed.
LIST <i>object-name</i>	If you enter a single <i>object-name</i> with the LIST command, you need not specify the <i>object-type</i> ; the object's source code will be listed.

Displaying Directory Information

LIST DIR	<p>Displays the directory information on the object currently in the source work area:</p> <ul style="list-style-type: none"> ● Source code: "Saved-on" date and time, library name, user ID, programming mode (Reporting or Structured), TP system, terminal ID, operating system, transaction, Natural version, source size ● Object code: "Cataloged-on" date and time, library name, user ID, programming mode, Natural version, operating system/version, GDA used, size of global data, size in DATSIZE, size in buffer pool, size of OPT-code (size of machine code generated by Natural Optimizer Compiler), initial OPT-string (OPT parameter setting effective at STOW time)
LIST DIR <i>object-name</i>	Displays the directory information (as described above) on the specified object.
LIST DIR *	Displays the directory information (as described above) of several objects.
LIST <i>object-name</i> WITH DIR	This command first displays the directory information (as described above) on the specified object and then lists the source code of the object.

Displaying Long Names of Cataloged Subroutines and Classes

LIST EXT [extended-type] <i>object-name</i>	Displays a list of the long names of cataloged subroutines and classes and directory information. The same name options as for LIST <i>object-name</i> apply.
---------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------

LIST SEQUENTIAL

LIST <u>SEQUENTIAL</u>	<p>Normally, when you use asterisk or wildcard notation for the <i>object-name</i>, you get a list of all objects that meet the specified selection criteria. On the list you can then select objects for display by marking them with the function code "LI" (see below).</p> <p>If you specify LIST SEQ(ENTIAL), the selection list will be suppressed, and the sources of all objects that meet the selection criteria will be displayed sequentially, i.e. one after the other.</p>
------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Displaying DDMs

LIST DDM	Displays a list of all DDMs.
LIST DDM <i>ddm-name</i>	<p>If you specify a single DDM name, the specified DDM will be displayed.</p> <p>For the <i>ddm-name</i> you can use the same range notations (*, ?, <, >) as for <i>object-name</i> to display a list of a certain range of DDMs.</p>

Instead of the keyword "DDM", you can also use the keyword "VIEW" (or "V" for short).

Displaying XREF Data

LIST XREF	Displays all active cross-reference data for the current library. This command is only available if Predict with active cross-references is installed. See the Predict documentation.
-----------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

LIST EXT extended-type object-name and LIST object-type object-name

If you specify an *object-type*, you must also specify an *object-name*.

To have all objects in the current library listed, you specify "*" for the *object-type*, but no *object-name*.

To have all objects of a certain type listed, you specify a certain *object-type* and "*" for the *object-name*.

If you wish a certain range of objects to be listed, you can use asterisk notation and wildcard notation for the *object-name*:

- Asterisk notation is the option to specify an asterisk (*) in the *object-name*: the asterisk stands for any string of characters of any length.
- Wildcard notation is the option to specify a question mark (?) in the *object-name*: the question mark stands for any single character.

One or more asterisk and wildcard notations can be combined in an *object-name*.

For a list of all objects from a specific start setting or until a specific end setting, you can use the notation ">" or "<" respectively.

The notations "<" and ">" cannot be combined with each other or with asterisk or wildcard notation.

Examples:

LIST *	lists all objects in the current library.
LIST S *	lists all subroutines in the current library.
LIST SYS*	lists all objects (of any type) whose names begin with "SYS".
LIST M SYS*	lists all maps whose names begin with "SYS".
LIST C *CODE	lists all copycodes whose names end with "CODE".
LIST NAT*AL	lists all objects whose names begin with "NAT" and end with "AL" no matter which and how many other characters are between "NAT" and "AL" (this would include the names "Natural" and "NATIONAL" as well as "NATAL").
LIST DOO?	lists all objects with 4-character names beginning with "DOO" (this would include the names "DOOR" and "DOOM", but not "DOO" or "DOODLE").
LIST M NAT?AL	lists all maps whose names begin with "NAT" and end with "AL" with exactly one character are between "NAT" and "AL" (this would include the names "NAT1AL" and "NAT2AL", but not "NATAL" or "NATIONAL").
LIST M *1*	lists all maps whose names contains a "1".
LIST M F>	lists all maps, starting from the first one whose name begins with "F".
LIST M MA<	lists all maps, from the first one until the one named "MA" (if present).
LIST EXT *	lists the long names of all subroutines/classes in the current library - regardless of their type.

Options

- NUMBERS OFF
- FORMATTED
- SETTINGS
- FIELDS
- EXTFIELDS
- RULES/INLINERULES/FREERULES/AUTORULES

NUMBERS OFF

By default, the source code of an object will be listed with source-code line numbers. To list it without line numbers, specify the NUMBERS OFF option. (See also subcommands NUMBERS ON/NUMBERS OFF in the section Subcommands for Listed Source.)

FORMATTED

This option applies only to stowed data areas (where time stamp of source object and cataloged object are identical) and maps:

- If you specify this option for a data area, the data area will be displayed formatted; that is, the display resembles a DEFINE DATA statement. (See also subcommand FORMAT in the section List of Source.)
By default, data areas are displayed unformatted; that is, the display resembles that in the data area editor.
- If you specify this option for a map, the map *layout* will be displayed, that is, the map as it is displayed to the users at runtime. In addition, you may specify filler characters *c* for input fields (AD=A and AD=M) and output fields (AD=O) to make these fields visible. You may specify any character as filler character. (See also the subcommands LAYOUT and FORMAT in the section List of Source.)

SETTINGS

This option applies only to maps; it causes the map settings of the map to be displayed.

FIELDS

This option only applies to maps; it causes the field summary, that is, the list of fields in the map, to be displayed.

EXTFIELDS

This option only applies to maps; it causes the extended field editing information for all map fields to be displayed.

RULES/INLINERULES/FREERULES/AUTORULES

These options apply only to maps: they cause the processing rules used by the map to be displayed. The rules are displayed in order of fields to which they are assigned, and per field in order of rank.

RULES displays all processing rules. INLINERULES displays only the inline rules. FREERULES displays only the free rules. AUTORULES displays only the automatic rules.

List of Objects

- Scrolling the Selection List of Objects
- New Criteria for the Selection List
- Information Displayed on the Selection List
- Items Intensified on the Selection List
- Subcommands for a List of Objects
- Selecting an Object from the Selection List

Scrolling the Selection List of Objects

Once a list of objects is displayed, you can scroll it as follows:

- To scroll the list one page forward or backward, press PF8 or PF7 respectively.
- To scroll the list to its beginning or end, press PF6 or PF9 respectively.

New Criteria for the Selection List

When a list of objects is displayed, the fields immediately underneath the column headings show the selection criteria for the current list. You can change the selection criteria by overwriting the settings of these fields. For information on the possible settings for one of these fields, you enter a question mark (?) in the field.

Information Displayed on the Selection List

If there exists both a source and an object module for an object (as indicated in the column "S/C"), the information displayed refers to the source, not the object module.

Note:

When the sort function is active, the source and the object module may be displayed separately, e.g. when the list is sorted by the object date and the source and the object module have different date values.

Press PF11 to display more information on source and cataloged objects.

Note:

By default the number of source lines of source objects is not calculated due to performance reasons. If you want the number of source lines of source objects being displayed, you can either enter the subcommand COUNTSOURCE ON (see below) or set in the LIST profile (see below) the parameter COUNT-SOURCE-LINES to Y.

Items Intensified on the Selection List

If an item is displayed intensified on the list, this indicates that there is a discrepancy between the object's source and its object module. For information on the discrepancy, you may mark the object with the function code "LD" (see below) to list its directory information. To eliminate the discrepancy, it is usually sufficient to stow the object again (function code "ST"; see below).

Subcommands for a List of Objects

In a list of objects, you can enter a Natural system command or a LIST subcommand in the command line. Valid subcommands are:

Code	Function
SC	List only objects containing a scan setting (cannot be used if SHORT list is active).
SC OFF	Switch off scan mode.
SHORT	Display a short list of objects, i.e., display only the object names (cannot be used if SC mode is active).
LONG	Switch to "normal" list.
PRINT	Print the list of objects.
<u>EXTENDED</u>	Display the list of long names of subroutines/classes.
ALL fx	Enter the function code "fx" (where "fx" is a valid function code for a listed object) for all displayed objects.
+	Scroll one page forward.
-	Scroll one page backward.
++	Scroll to the end (bottom) of the object list.
--	Scroll to the beginning (top) of the object list.

Selecting an Object from the Selection List

To select an object from the selection list for a function, you simply mark the object with the appropriate function code in the left-hand column (titled "Cmd").

The following function codes are available (possible abbreviations are underlined):

Code	Function
?	A window will be displayed which shows all the functions available for the marked object. The window will only list those functions that are actually available for the selected object (for example, if the object is a subroutine, it cannot be run; if the object is only available in source form, it cannot be executed). From the window you can select the function to be performed on the marked object.
CA	Compile the object and store it in object form (equivalent to the system command CATALOG).
<u>DE</u>	Delete the object (equivalent to the system command DELETE).
DL	Download object from mainframe to personal computer (only available if Natural Connection is installed).
<u>ED</u>	Edit the object's source (equivalent to the system command EDIT).
EX	Execute the object (equivalent to the system command EXECUTE).
LD	List directory information (equivalent to LIST DIR <i>object-name</i>).
LE	List in expanded form (equivalent to LIST <i>object-name</i> EXPAND *).
LF	Display a data area or map formatted (equivalent to LIST <i>object-name</i> FORMATTED).
<u>LI</u>	List the object's source.
RE	Rename the object (equivalent to RENAME).
<u>PR</u>	Print the object's source.
<u>RU</u>	Run (that is, compile and execute) the object's source (equivalent to the system command RUN).
<u>ST</u>	Stow the object in source and object form (equivalent to the system command STOW).
UC	Delete the object module (uncatalog).
.	Exit.

You can mark several objects on the selection list with different function codes; the functions will then be performed one after the other.

List of Source

- Subcommands for Listed Source
- FORMAT
- Cursor-Sensitive Object Selection
- expand-option

Subcommands for Listed Source

When you have the source code of an object listed, you can enter in the command line one of the commands described below.

Subcommand	Function
+	Scrolls one page forward.
-	Scrolls one page backward.
++	Scrolls to the end (bottom) of the source.
<u>B</u> OTTOM	
--	
<u>T</u> OP	Scrolls to the beginning (top) of the source.
+ <i>n</i>	Scrolls <i>n</i> lines forward.
- <i>n</i>	Scrolls <i>n</i> lines backward.
<i>nnnn</i>	Scrolls to line number <i>nnnn</i> .
<u>E</u> XPAND	See Expand-Option.
<u>F</u> IELDS	Applies to maps only: displays the field summary; that is, the list of fields in the map.
FIND [<u>A</u> BSOLUTE] <i>setting</i>	<p>Displays only those source lines which contain the specified <i>setting</i>.</p> <p>If you enter only the command FIND itself, a window will be displayed in which you can enter the <i>setting</i> to be sought and specify whether the search is to be absolute or not.</p> <p>By default, the search will not be absolute; that is, the <i>setting</i> will only be found if it is an isolated word. If you specify "ABS(OLUTE)" after the command, the search will be absolute; that is, the <i>setting</i> will also be found if it is part of a larger string of characters.</p>
<u>F</u> ORMAT	Applies to data areas and maps only: displays "formatted" data area or map, and items related to the map.
<u>L</u> AYOUT	Applies to maps only: displays the map layout; that is, the map will be displayed as it is displayed to the users at runtime.
<u>N</u> UMBERS ON	Displays the source with source-code line numbers.
<u>N</u> UMBERS OFF	Displays the source without source-code line numbers.
<u>P</u> RINT	Prints the listed source.

Subcommand	Function
REF [<u>A</u> BSOLUTE] <i>setting</i>	<p>Displays the line numbers of the source-code lines which contain the specified <i>setting</i>.</p> <p>If you enter only the command REF itself, a window will be displayed in which you can enter the <i>setting</i> to be sought for and specify whether the search is to be absolute or not.</p> <p>By default, the search will not be absolute; that is, the <i>setting</i> will only be found if it is an isolated word. If you specify "ABS(OLUTE)" after the command, the search will be absolute; that is, the <i>setting</i> will also be found if it is part of a larger string of characters.</p>
<u>R</u> ULES	Applies to maps only: displays the processing rules used by the map (the rules are displayed in order of fields to which they are assigned, and per field in order of rank).
<u>S</u> CAN [<u>A</u> BSOLUTE] <i>setting</i>	<p>Displays all lines intensified which contain the specified <i>setting</i>. The source will be scrolled to the first line that contains the <i>setting</i>.</p> <p>If you enter only the command SCAN itself, a window will be displayed in which you can enter the <i>setting</i> to be sought for and specify whether the search is to be absolute or not.</p> <p>By default, the search will not be absolute; that is, the <i>setting</i> will only be found if it is an isolated word. If you specify "ABS(OLUTE)" after the command, the search will be absolute; that is, the <i>setting</i> will also be found if it is part of a larger string of characters.</p>
SCAN= or SC=	Executes the last SCAN command again.
<u>S</u> ETTINGS	Applies to maps only: displays the map settings of the map.
<u>Z</u> OOM [<i>expand-type</i> ...10] <i>object-name</i>	<p>Specifying a single <i>object-name</i> with the ZOOM command has the same effect as marking the name in the listed source with the cursor (see the section Cursor-Sensitive Object Selection): the selected object will be displayed in a window.</p> <p>If you use asterisk/wildcard notation for the <i>object-name</i>, all selected objects will be displayed in a window in the sequence in which they are referenced in the listed source; see also below.</p> <p>The specification of an <i>expand-type</i> is the same as for the EXPAND option.</p> <p>For an object displayed within a window invoked by ZOOM, the same subcommands (except PRINT, EXPAND and ZOOM) are available as for the normal listed source. Moreover, if you have used asterisk or wildcard notation and several objects are displayed, you can use the commands "<u>N</u>EXT" and "<u>P</u>REV" (or PF4 and PF5) to move from one object in the window to the next one or previous one respectively.</p>
.	Exit.

FORMAT

This subcommand only applies to stowed data areas (where time stamp of source object and cataloged object are identical) and maps.

For data areas, this subcommand corresponds to the option FORMATTED.

When you enter the subcommand FORMAT for a map, a window will be displayed in which you can select one or more additional items related to the map to be displayed:

- Map settings (corresponds to subcommand SETTINGS).
- Map layout (corresponds to subcommand LAYOUT). When you select this item, you have the option to specify filler characters for input fields (AD=A and AD=M) and output fields (AD=O) to make these fields visible. You may specify any character as filler character.
- Field summary (corresponds to subcommand FIELDS).
- Processing rules (corresponds to subcommand RULES).

The items you select are displayed one after the other in the order in which they appear in the selection window.

In FORMAT mode, the same subcommands for scrolling - except "B" - and the subcommands FIELDS, LAYOUT, PRINT, RULES and SETTINGS are available as for a normal listed source (see above). Additional subcommands are available as described below for each item.

Additional Subcommands for Map Layout

$S > n$	Shift map layout n columns to the right.
$S < n$	Shift map layout n columns to the left.

Additional Subcommands for Field Summary List

<u>E</u> XTEND	Displays the extended field editing information for all map fields. To have the extended field editing information for an individual field displayed, mark the field name on the field summary list with the cursor and press ENTER.
<u>R</u> ULES <i>nn</i>	Displays the processing rules attached to field <i>nn</i> (<i>nn</i> being the sequential field number (first column of the field summary list)). To have the processing rules of a field displayed, you can also enter an "R" in the command line and then mark the field name on the field summary list with the cursor and press ENTER.
<u>S</u> CAN [<u>A</u> BSOLUTE] <i>setting</i>	Same as for listed source.
<u>S</u> CAN =	Same as for listed source.

Additional Subcommands for Processing Rules

<u>S</u> CAN [<u>A</u> BSOLUTE] <i>setting</i>	Same as for listed source.
<u>S</u> CAN =	Same as for listed source.

Cursor-Sensitive Object Selection

Within a source that is being listed, you can mark with the cursor the *name* of an object referenced within that source, and the source of the selected object will be listed in a window.

For the source displayed within the window, the same subcommands - except PRINT, EXPAND and ZOOM - are available as for the "normal" listed source.

expand-option

```
EXPAND [FORMATTED] [COMMENTS  
n] [expand-type...10] object-name
```

With the EXPAND option, you can have the sources of other objects referenced by the listed object - copycodes, data areas, maps, help routines, external subroutines, subprograms, FETCHed programs, error messages - listed **within** the source of the listed object. This option is particularly useful in batch mode.

For example, if a listed source program contains an INCLUDE statement, you can have the source code of the included copycode listed within the listed source program immediately after the INCLUDE statement.

Objects listed within a source will be referred to as *expand objects* in the explanations below.

EXPAND FORMATTED

The FORMATTED option is only relevant for stowed data areas (where time stamp of source object and cataloged object are identical) and maps listed within a source.

For data areas, the following applies:

- If FORMATTED is not specified, the display of the data area will resemble that in the data area editor
- If FORMATTED is specified, the display of the data area will resemble a DEFINE DATA statement.

For maps, the following applies:

- If FORMATTED is not specified, the map *source* will be listed.
- If FORMATTED is specified, the map *layout* will be displayed (that is, the map as it is displayed to the users at runtime).

EXPAND COMMENTS / EXPAND *n*

If you use the option EXPAND COMMENTS, only the initial comment lines of the expand object will be listed; that is, the expand object will be listed until (but not including) the first source-code line which is not a comment line.

If you use the option EXPAND *n*, only the first *n* lines of the expand object will be listed.

If you use neither of these two options, the entire expand object will be listed.

expand-type

As *expand-type*, you specify the object type(s) of the expand object(s). The following *expand-types* can be specified:

P	Programs
N	Subprograms
S	External subroutines
H	Helproutines
G	Global data areas
L	Local data areas
A	Parameter data areas
M	Maps
C	Copycodes
E	Error messages
4	Class
*	All object types

If you wish to specify more than one *expand-type*, you can specify them in any sequence and without blanks between them; for example, to have maps, copycodes and subroutines listed within the listed source, specify the *expand-type* as "MCS".

object-name

As *object-name*, you specify the name(s) of the expand object(s) to be listed within the main listed source.

For the *object-name* of an expand object, the same options are available as for the object-name of the main listed object in the primary LIST command syntax. Exceptions: the notations "<" and ">".

Subcommands in Expand Object

Within a listed expand object, only the subcommands PRINT, "+", "- ", and "." are available (see above for explanation of subcommands).

